

## Patent Claims

1. A cold cathode ionization manometer for measuring pressure in a vacuum, operating on the magnetron principle and comprising the following characteristics:
- a measuring tube housing (MRG) is - except for a measuring opening (MOE) for the input of measuring gas - closed in a vacuum tight manner and is provided in its internal chamber at least a first cathode (K1) and a second cathode (K2) as well as with a common rod-shaped anode (A) which may be connected to an anode voltage source;
  - the cathodes (K1; K2) are independent of each other as well as electrically insulated, are of drum or can-like shape and are arranged coaxially with respect to the anode (A) which extends through openings in the end surfaces of the cathodes (K1; K2), whereby the second cathode (K2) is positioned behind the first cathode (K1) disposed adjacent to the measuring opening (MOE) and separate gas discharges are fulgurating between the cathodes (K1; K2) and the anode (A);
  - the at least one opening in at least one of the end surfaces of the cathodes (K1; K2) facing each other is dimensioned to form a predetermined flow resistance to contaminating gases;
  - the second cathode (K2) only is operatively connected to measuring and evaluation which define the gas pressure on the basis of the value of the discharge current generated by the fulgurating gas discharge between the second cathode (K2) and the anode (A), while the discharge path between the first cathode (K1) and the anode (A) is formed as a gas purification device.

2. The cold cathode ionization manometer for measuring pressure in a vacuum in accordance with claim 1, characterized by the fact that at least the first cathode (K1) is arranged in the measuring tube housing (MRG) for easy replacement.
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3. The cold cathode ionization manometer for measuring pressure in a vacuum in accordance with claim 1 or 2, characterized by the fact that for conducting the measuring current the second cathode (K2) is provided with at least one vacuum-tight highly insulated conduit through the measuring tube housing (MRG) whereby the conduit is provided with a vaporization protection (BS).
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4. The cold cathode ionization manometer for measuring pressure in a vacuum in accordance with one of the preceding claims, characterized that for an easy exchange both cathodes (K1; K2) are mounted in the measuring tube housing (MRG) by clamping connections.
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5. The cold cathode ionization manometer for measuring pressure in a vacuum in accordance with one of the preceding claims, characterized by the fact that on the side of the vacuum the anode (A) is held by a screw connection.
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6. The cold cathode ionization manometer for measuring pressure in a vacuum in accordance with one of the preceding claims, characterized by the fact that at pressures exceeding  $10^{-2}$  Pa the anode voltage is a sinusoidal or rectangular alternating voltage the frequency of which is optimized in accordance with the geometric parameters of the measuring tube and the operating parameters.
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